

Remarks

The subject application has been carefully considered in view of the Examiner's Action (Final) of August 14, 2003. Accordingly, Claims 1 and 4 are cancelled and their subject matter combined as new Claim 27. Claim 26 also is cancelled and is removed from consideration.

Applicant regrets the errors in formulating the amendments to Claims 1 and 4. These errors stand corrected by the cancellation and rewriting of Claims 1 and 4 as new Claim 27. Also regretted is the error in identifying the lines of the Specification at page 6 for amendment. The current amendment to Page 6 corrects this.

1. Claims 1 and 11 stand rejected under 35 U.S.C. 102 (b) as being anticipated by Gehrre (US 2, 761, 547). The rewriting of Claims 1 and 4 as new Claim 27 renders the rejection moot in that Gehrre clearly does not disclose a core composed of an open cell foam.

2. Claims 4 and 6 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Gehrre in view of Matson (US 3, 866, 716). (Note: The limitation of Claim 4 is now incorporated into new Claim 27.) Matson is cited as showing it is well known in the art to use a cellular structure made of polyurethane as the core for a roller.

Matson discloses a roller structure that is able to internally store a lubricant under pressure. In this respect Matson has a roller that is a hollow tube (10). The ends of the hollow tube are journaled to the shaft (see Figure 2). Accordingly the hollow tube at all times remains concentric with the shaft.

In Matson the hollow tube is filled with a "sponge-like material that is capable of being radially compressed" (Column 3, lines 16-17). This is so a lubricant introduced between shaft and the filling will cause the filling to compress against the inner surface of the tube. The compressed core exerts a pressure on the lubricant so that the lubricant between the compressed core and shaft is forced slowly out through the bearings (Column 3, lines 47-55) that journal the tube to the shaft. To accomplish this a characteristic of the core material is that it "is of a closed cell construction" (Column 3, lines 29-31).

It would appear that a closed cell construction is essential to Matson. One choosing to utilize the Matson teachings in combination with Gehrler could not ignore the instruction to use a foam material having "a closed cell construction". This comprises a teaching away from the Claim 26 limitation that the core material is "open cell foam". Accordingly, combining the references as proposed by the Examiner still would fall short of the invention as Claimed.

The Examiner states "applicant has not disclosed that using an open cell structure provides an advantage, is used for a particular purpose or solves a stated problem" and maintains the rejection (of Claim 4). This is not the case. Page 10 of the specification at lines 1-7 explains that in high speed or high-pressure applications the repeated or continuous flexing of the core material as the roller rotates against an opposed surface generates heat. It goes on to say that an "Open cell foam material dissipates heat more easily than a closed cell material" and therefore is a preferred material. This is an unequivocal statement of advantage, use for a particular purpose and the solution of a problem (the dissipation of the heat caused by repeated flexing).

Saying there is no unexpected result is hindsight and ignores that there first must be a recognition that with a compliant core, the connection of the non compliant outer layer to the shaft and the resulting repeated flexing of the core (even in a situation where a low thermal hysteresis foam is used) will generate heat. Applicant contends that the solution to this problem that employs the use of an open cell foam to facilitate the dissipation of this heat is not obvious. The problem appears not recognized by any of the references and certainly the solution is not recognized or made obvious by any of the references. None of the references teach use of an open cell foam in this context. Gehrler says to use "rubber or any other suitable elastic and/or resilient substance" (Column 2 lines 60-64) and Matson, as noted above, teaches an opposite construction in saying that a closed cell foam is the structure of choice.

In addition, the tests reported on page 11 of the specification, and in particular Example 1, demonstrates that a roller according to the present invention survived 120 hours of operation at 100 RPM. Accordingly, Applicant considers that Claim 27 is not obvious in view of the references.

The Applicant considers that the Examiner's prima facie case of obviousness has been rebutted. The Examiner has not shown that the two foam structures are equivalent in this context so it is not Applicant's burden to rebut an allegation that no unexpected results or benefits are attained.

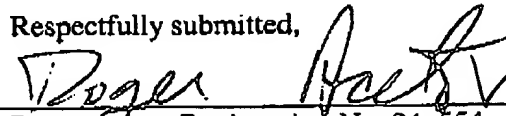
3. Claims 8-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by Gehrer or in the alternative as being obvious over Gehrer in view of Blackwood-Murray (US 4, 440, 295). The redrafting Claims 1 and 4 as new Claim 27 traverses the rejection under 35 U.S.C.102 (b).

Blackwood-Murray is cited as disclosing a roller having an outer surface with a Shore A hardness of 35-60. This disclosure notwithstanding, the combination proposed by the Examiner still would lack a compliant core composed of an open cell foam. Moreover the Shore A hardness of 35-60 is specified by Blackwood-Murray in the context of "an impact roller" (Column 2, lines 22-27). For a "transport" roller that is more analogous to a roller used in a roller assembly for "transporting a sheet material" as recited in Claim 27, the reference specifies a Shore A hardness of less than 80 and preferably not less than 100 (Column 2, lines 7-13). This is far above the values in Applicant's Claims.

4. Claims 12, 13 and 14 stand rejected under 35 U.S.C.103 (a) as being unpatentable over Gehrer in view respectively of Sawa, et al, (Claim12), Eiji (Claim 13) and Gehrer in view of Sawa, et al and Eiji (Claim 14). Each of these rejections is considered traversed by new Claim 27 in that each of the proposed combinations would still lack at least a core composed of an open cell foam as claimed.

Accordingly, Applicant considers that the claims are in condition for allowance, which action is respectfully requested. In the alternative, Applicant requests that the amendment be entered as it reduces the issues and places the case in better form for appeal.

Respectfully submitted,



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